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THE EFFECTIVE CAUSAL AGENT: A PRELIMINARY
INVESTIGATION AND VALIDATION OF A
PERSONALITY CONSTRUCT

By

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B.A., Idaho State College, 1950

M.A., University of Montana, 1969

Presented in partial fulfillment of the requirements
for the degree of

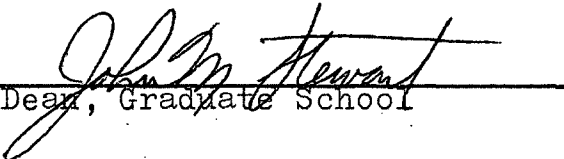
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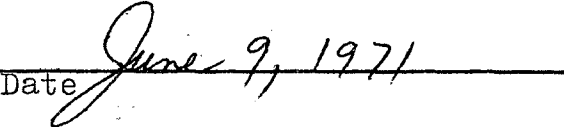
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Chapter 1

INTRODUCTION

"Joy in being a cause is
well-nigh universal" (Groos, 1901).

As far back as the turn of the century, Groos (1901), in his analysis of play, repeatedly referred to "joy in being a cause" and the desire to be an efficient cause. He said, "We demand a knowledge of effects and to be ourselves the producers of effects [p. 384]." Implicit in this is the experiencing of effectiveness or causality. The importance of feedback (or reinforcement) for this experiencing was explicitly stated. Groos also said that "the primitive impulse to extend the sphere of their power as far as possible leads men to the conquest and control of objects lying around them [p. 95]."

When a person is an "effective causal agent" he feels that he is in control of himself and his world. When a person, in the long run, is effective in causing things to happen rather than having the world control him, he feels good, and he feels that he is in a healthy psychological state. The phenomenological aspect, that is, the direct experiencing of effectiveness, is essential to the

construct which is termed the effective causal agent (ECA).¹ Since the individual is causing things to happen activity is also a part of the construct. Through his activity the individual receives the feedback (reinforcement) necessary to maintain his feeling (experiencing) of effectiveness.

The individual as an effective causal agent is implicit, if not explicit, in many personality theories and can be inferred from the work of various psychologists. The generality of the meaning behind the term effective causal agent can be seen in most major personality theorists' descriptions of adequate people. This generality is found in the very core of the theories, not just in the superficial aspects.

For example, Adler (1930) spoke of overcoming inferiority and of the striving for superiority which runs parallel to physical growth. He said, "This now, appeared to me as the fundamental law of all spiritual expression: that the total melody is to be found again in every one of its parts, as a greatest common measure--in every individual the craving for power, for victory over the difficulties of life [p. 399]." He saw the individual as being capable of planning and guiding his actions and as motivated by his expectations for the future (Hall and Lindzey, 1957).

Allport (1937) included in his early, well-known

¹This construct was suggested by Dr. John R. Means. Personal communication, 1970.

definition of personality the individual's adjustment to the environment.² He stressed that this is not a mere reactive adaptation, but involves mastery and spontaneous, creative behavior. Later (1955), his concept of propriorate striving saw the individual as something similar to the effective causal agent. By propriorate, Allport meant central to the organism. "Propriorate striving" is activity of the organism which goes beyond the immediate satisfaction of impulses and drives. Propriorate activity is "ego-involved," and leads to unification of the personality. The open system, according to Allport (1960), views the human organism as more than a system for the intake and output of energy--there is "extensive transactional commerce with the environment [p. 303]."

Other authors also consider the healthy human as an effective causal agent. Maslow (1954) stated that all people in our society have a need for self-esteem. In the classification of self-esteem needs, he included "the desire for strength, for achievement, for adequacy, for mastery and competence, for confidence in the face of the world, and for independence and freedom [p. 90]." Furthermore, Maslow continued, "satisfaction of the self-esteem need leads to feelings of self-confidence, growth, strength,

²"Personality is the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment [Allport, 1937, p. 48]."

capability and adequacy, of being useful and necessary in the world [p. 91]." He saw the thwarting of these needs as producing feelings of inferiority, weakness and helplessness, which in turn may give rise to neurotic trends.

Research evidence supporting the importance of self-esteem to adequate adjustment and effectiveness can be found in the work of Coopersmith. Coopersmith (1967), in a book summarizing his eight years of research investigating the antecedents of self-esteem, noted that he had found that children with high self-esteem were more effective and less likely to display marked problems. Effectiveness was defined by Coopersmith as competence in dealing with social, academic and personal matters. Coopersmith cautioned that these findings were based on subjective reports of subjects and appraisals of their mothers rather than upon indices derived from projective material, the point being that defense mechanisms may have been operating when the reports were made. Nevertheless, for purposes of this paper, it is relevant to note that there is a relationship between high self-esteem (generally believed to be associated with adequate personal functioning in our society) and effectiveness.

Rogers (1963) spoke of actualizing tendencies in the organism, fulfillments sought in the "transactions" with the environment, for producing change in the environment. In writing about individuals in therapy he stated that

behavior changes when the client is able to see himself as the perceiver and organizing agent (Rogers, 1947). He went on to say that when a person has been told that conditions are beyond his control therapy is more difficult. The client must be able to reorganize his perceptions himself in order for change to occur. In other words, when the client comes to see himself as an effective causal agent, change is possible.

Kelly (1955) described the individual as attempting to be an effective causal agent when he stated in his "choice corollary" that a person chooses from a dichotomous construct the alternative which he thinks will offer the greater possibility for "extension and definition of his system."

Angyal (1965) also viewed the organism as an active agent with a "tendency to move upstream." In writing about autonomy he said:

Perhaps the clearest and most direct expression of the organism's tendency to impress its determination on a wide range of events is the drive to act, to make things happen for the mere joy of action and for the sake of experiencing oneself as the cause of changes [p. 9].

A person who consistently is not an effective causal agent might be characterized by a generalized lack of autonomy, in Angyal's terms.

When the lack of autonomy is a generalized one, the person's course seems to be determined by external happenings; he becomes a straw in the wind, a piece of driftwood carried by currents, a creature of

circumstances. This state of affairs is created by the person himself. A self-image strongly colored by feelings of impotence, whatever its origins, will affect the person's behavior and way of living and may eventually bring about an actual reduction of self-determination [Angyal, 1965, p. 11].

Angyal's position can be conceptualized within a reinforcement model. For example, when a person is not autonomous (not an effective causal agent) he is not receiving positive reinforcement for his actions. When the person is autonomous (that is, when he is an effective causal agent) the feedback is essentially positive in that he knows or feels that he is causing things to happen. In this case, the self-image will be "colored by" feelings of potency rather than by feelings of impotence.

Many of Piaget's observations of the activities of children indicate that the activities are not aimed at satisfying primary biogenic needs, but at achieving a mastery of their environment, that is to say, learning to become effective causal agents. Piaget's son Laurent was described as receiving much enjoyment from things as shaking the chain on his rattle, exploring new objects and trying out his repertory of actions upon them (Piaget, 1952).

Piaget (1952) states:

. . . the child does not undergo simple external pressure from the environment but tries, on the contrary, to adapt himself to it. . . . Experience, accordingly, is not reception but progressive action and construction [Piaget, 1952, p. 110].

Riesman (1954) spoke of the helplessness of modern

man which results from the enhanced power of the social group and the incorporation of the authority of the group into the character of man. He stated that the other-directed character "is not engaged in a direct struggle for mastery over himself and nature . . . [p. 110]." Thus, there is a similarity between Riesman's other-directed character and the individual who is not an effective causal agent. The inner-directed character is similar to the effective causal agent.

Strodtbeck (1958) examined "mastery expectations" in a study of Italian and Jewish family patterns and values which were related to the Protestant ethic of achievement. Old-culture Jewish beliefs were seen as congruent with a belief in a rational mastery of the world. Italian beliefs found no logic in striving since events were seen as beyond the control of the individual. A factor analysis of a value scale administered to a selected Jewish and Italian population isolated a factor which Strodtbeck called "a belief that the world is orderly and amenable to rational mastery: that, therefore, a person can and should make plans which will control his destiny . . . [p. 186]." Strodtbeck's mastery expectations seem very similar to the internal-external control dimension of Rotter (1954), and at the same time bear a relation to the ECA construct since the person is expected to plan and control his life. Strodtbeck's article also suggested (although not explicitly) that there

might be a cultural or ethnic basis for internal-external control.

The sociological construct of alienation can also be related to the effective causal agent concept and to locus of control of reinforcement. Foremost in the five definitions of alienation stated by Seeman (1959) is alienation in the sense of powerlessness. Seeman defined powerlessness as "the expectancy or probability held by the individual that his own behavior cannot determine the occurrence of the outcomes, or reinforcements, he seeks [p. 784]." Seeman did not want this to be considered as an "index of personality adjustment." He limited applicability of powerlessness to man's relation to the "larger social order." In a later paper, however, Seeman (1963) showed that differences in alienation (powerlessness) are associated with differential learning of behavior-relevant information among patients in a tuberculosis hospital. The more alienated patients scored lower on a test of knowledge about tuberculosis. Seeman took this as evidence that the individual's generalized expectancies for the control of events are relevant to his performance. Thus, even though Seeman began by not using powerlessness as an "index of personality adjustment," in later writings he did just that.

Two theories, in particular, have been concerned with concepts which are more fully developed in relation to

that of the effective causal agent: White's (1959) competence model and Rotter's (1954) social learning theory concept of the locus of control of reinforcement.

White (1959) defined competence as "an organism's capacity to interact effectively with the environment [p. 287]." For White, the concept of competence provides a motivational construct which accounts for much of the activity of the organism which is not involved directly in the satisfaction of primary biogenic needs. The motivation needed to attain competence is not derived entirely from drives or instincts. White termed the motivational component of competence "effectance." White (1959) cited evidence from various trends of thought in animal and human psychology supporting his concept. Included in this review is the work in exploratory behavior, manipulation, curiosity, the play of children and ego psychology. He leaned heavily on research and writing showing that neither pleasure nor reinforcement depends upon drive reduction and that motivation does not require a source of energy external to the nervous system. Effectance motivation was characterized as producing a feeling of efficacy. This feeling of efficacy is similar to what is meant by the feeling resulting when an individual is an effective causal agent. White (1960) has also developed his position in a paper dealing with competence and Freud's psychosexual stages of development. Here he stated that "competence of an organism means

its fitness or ability to carry on those transactions with the environment which result in its maintaining itself, growing and flourishing [p. 100]."

Effectance is to be conceived as a neurogenic motive, in contrast to a viscerogenic one. It can be informally described as what the Sensorineuro-muscular system wants to do when it is not occupied with homeostatic business. Its adaptive significance lies in its promotion of spare-time behavior that leads to an extensive growth of competence, well beyond what could be learned in connection with drive reduction [pp. 102-103].

White did not deny the contribution of the psychoanalytic models of development. However, he proposed that the competence model parallels and supplements the traditional psychoanalytic models.

The concept of competence subsumes the whole realm of learned behavior whereby the child comes to deal effectively with his environment. It includes manipulation, locomotion, language, the building of cognitive maps and skilled action, and the growth of effective behavior in relation to other people. . . . The directed persistence of such behavior warrants the assumption of a motivation independent of drives, here called effectance motivation, which has its immediate satisfaction in a feeling of efficacy and its adaptive significance in the growth of competence. . . . The child's actual competence and his sense of competence are built up from his history of efficacies and inefficacies, and a sense of competence is held to be a crucial element in any psychology of the ego [pp. 137-138].

White's ideas provided the theoretical basis for studies of adequate teenagers and their coping strategies by Silber and his colleagues (1961) and Coelho, Hamburg and Murphey (1963). Coelho, Hamburg and Murphey (1963) stated that "coping functions involve not only self-manipulation

of feelings in order to contain anxiety and maintain self-esteem, but also environmental management and realistic problem solving [p. 434]." Silber's teenagers were high school seniors planning to go to college. These students had an attitude of being adequate and capable. Their self-images were maintained, characteristically, by self-initiated action of various types. Grinker, Grinker and Timberlake (1962) also found that homoclitics ("mentally healthy" young males) characterized themselves as "thinkers and doers," and characteristically their response to affects stimulated by external events or occurring spontaneously was to do something. Also corresponding to White's ideas is Lois Murphy's (in Lazarus, 1969) statement that successive experiences of mastery help young children strengthen their sense of identity and gain control over their environment. The descriptions of the young people in the above studies suggest that they might also be termed effective causal agents.

Rotter's (1954) locus of control construct has stimulated much research during the past decade. Locus of control of reinforcement is an integral part of Rotter's social learning theory. Locus of control is conceived as an expectancy that reinforcement is or is not contingent upon one's own behavior. The locus of control is either internal or external. Lefcourt (1966) defined this in the following way:

As a general principle, internal control refers to the perception of positive and/or negative events as being a consequence of one's own actions and, thereby, under personal control; external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors and, therefore, beyond personal control [p. 186].

Lefcourt added that locus of control is not the single causative factor in competence, but is one of several correlates of competence. Elsewhere (1965), he stressed the fact that internal-external control is not motivational, but is a generalized variable.

Numerous dimensions of the internal-external variable have been studied. The degree of internal versus external control is measured by the Internal-External Control (I-E) Scale (Rotter, 1966) which is discussed in more detail below. Experiments have typically classified subjects according to their ratings on the I-E Scale and tested them on a variety of tasks usually involving skill versus chance situations.

A review of the literature suggests that the internal might be characterized as showing more task-appropriate behavior (Lefcourt, Lewis and Silvern, 1968; Rotter and Mulry, 1965; Watson and Baumal, 1967; Liverant and Scodel, 1960); expressing less anxiety (Watson, 1967); more able to influence others (Phares, 1965); obtaining more information in ambiguous situations (Davis and Phares, 1967); having more insight (Tolor and Reznikoff, 1967); being more action-prone (Strickland, 1965; Gore and Rotter,

1965; Phares, Ritchie and Davis, 1968); and being more confident of his ability (Julian and Katz, 1968; Watson and Bauml, 1967).

Sex differences in locus of control were reported in Australia by Feather (1967), who found that female undergraduate students were high in external control. A decline in external control locus was found in female undergraduates in their middle to late twenties. In his review of research on I-E control, Lefcourt (1966) stated that response set, as measured by social desirability, has shown a relationship from barely significant to nonsignificant, and thus does not seem to be a factor for concern. He also felt that the research does not indicate that intelligence is a factor. Lefcourt added that "the success of a variety of techniques in measuring the control dimension provides support for the construct validity of that dimension and argues against a response-style interpretation of scale performance [p. 217]."

DEFINITION OF THE ECA CONCEPT

Originally it was said that when a person is an effective causal agent he feels that he is in control of himself and his world and feels that he is in a healthy psychological state. To develop this concept more fully, the effective causal agent was defined as an individual who is in phenomenological control of the events of his

life and who gains satisfaction from the fact that he is in control. Implicit in this use of the term control is the notion of causality; the individual who is in control "causes" things to happen rather than being manipulated by the situation. The term "phenomenological" is used in the sense of Snygg and Combs' (1949) phenomenology, and phenomenological control means that the individual is aware that he is the effective agent in causing things to happen in his life or phenomenal field, that is, the totality of his experience. "Gaining satisfaction" implies that the individual is reinforced by this experience of causality and derives a sense of well-being from it.

The ECA has caused things to happen and should continue to cause things to happen that have been positively reinforcing. The clarification and enhancement of feedback information is the motivational aspect of the effective causal agent. This could be termed verification. Clarification of which way to proceed is necessary for the individual. It may not matter if things go wrong, for the ECA finds out in this manner that he should not repeat that particular action. The important thing is that the ECA feels that he is in control, being causal, effective, or competent. Primary gratification or reinforcement is based on verification, and this knowledge gives him a feeling of effectiveness.

The effective causal agent construct is seen as an

integral part of the self-concept. The self-concept consists, essentially, of an individual's perceptions of himself. These perceptions are those things about himself which he actually experiences or of which he is aware. Thus, if the individual perceives himself as being an ECA most of the time, this perception will become a part of his self-concept. Likewise, if the individual consistently lacks a feeling of effective causality, he may become like Angyal's "straw in the wind" (see p. 5). This self-image will also be incorporated into the individual's self-concept.

In extreme forms the self-image of the individual who is not an ECA may be a contributing factor to maladjustment. For example, depression is closely related, in an inverse fashion, to the effective causal agent concept. Inability to be an ECA can be seen most dramatically in depression. It is assumed that an individual could not be severely depressed for any length of time and be considered (or consider himself) an ECA. The ECA is too actively engaged in causing things to happen and receiving positive or clarifying feedback from his actions to be depressed. In contrast, the non-ECA, with his feelings of ineffectiveness and lack of reinforcements, may become depressed.

The difficulties in defining and measuring depression are frequently referred to either explicitly or implicitly (e.g., Wittenborn, 1965; Blinder, 1966; Cameron,

1947; Lazarus, 1968). Wittenborn (1965) noted that for two thousand years the primary explanations of depressive disorders were in terms of some specified physical basis. Blinder (1966) stated: "As many classifications of depression exist as there are theories of its cause, and these are almost as numerous and varied as the patients suffering the symptom [p. 259]." It is apparent from this statement that various depressive reactions have been observed and labeled (e.g., retarded and agitated, endogenous and reactive, manic-depressive psychoses, and so on). Many theories regarding the cause of depressive orientations have also been postulated. Those theories related most closely with the effective causal agent concept are behaviorally oriented. Ferster (1965) contended that non-reinforcement of enough items in the individual's repertoire weakens the individual's behavior enough for a depression to be observed. Likewise, certain agitated behaviors frequently diagnosed as schizophrenic are similar to depression, "since the important property of the repertoire is the low frequency of behaviors that affect the environment productively [Ferster, 1965, p. 25]." The highly agitated behaviors seen in some patients are essentially a depression when viewed in relation to the functional relation to any positive effects on the environment. These schizophrenic or agitated behaviors would not likely be found in the repertoire of an ECA since awareness of control,

effective action, and positive feedback are lacking.

THEORETICAL DISTINCTIVENESS OF THE ECA CONCEPT

If the effective causal agent construct is to be of value it should be distinct from other constructs. White's (1959) competence model, although similar to the ECA construct, stressed the development of competence through "spare-time" behavior and the varied activities associated with this development. It is considered by White to be a motivational variable. In contrast, the ECA is a phenomenological and behavioral variable consisting of the individual's experiencing causality, effectiveness or competence in most of his daily behavior. The emphasis is on the phenomenological aspect and the action-taking behavior essential for verification. However, the focus is on the individual as an experiencing organism rather than on the development of competence per se.

Rotter's (1954) locus of control construct stressed the belief or expectation aspect of the source of control of reinforcement rather than actual behavior and its reinforcing consequences for feelings of effectiveness. I-E control is measured by a scale containing many items which do not really relate to the daily lives of many individuals. In contrast, the ECA construct is measured by recording the individual's day-to-day feelings of effectiveness in a

variety of daily activities and interpersonal situations. In a recent factor analysis of the I-E Scale, Mirels (1970) found two factors of significance. (Rotter [1966] had reported only one general factor.) Factor I was concerned with whether or not the respondents attached greater or lesser importance to ability and hard work than to luck as influences in "personally relevant" outcomes. The focus of both internal and external statements for Factor I is on the individual person as the "target of control." The items loading high on Factor II are concerned with acceptance or rejection of the idea that people can exert some control over political and world affairs. The social system rather than the individual is the "target of control." Factor II had to do with the question of whether the individual can have an impact on political or world affairs, and none of the statements have the respondents consider whether luck is a concern relevant to a person's political or social effectiveness. Thus, although Factor I was related to daily activity (and the ECA construct), Factor II was concerned largely with political and social events rather remote from the daily lives of those responding to the scale. Further, none of the Factor II items were stated in the first person. By taking the direct approach of asking subjects to rate their feelings of effectiveness over a period of time, the ECA questionnaire was a more direct measure of the phenomenological-behavioral

variable involved in the construct.

A final distinction of the ECA concept is that a person might express beliefs that he controls his own destiny (as does the "internal") and is the effective agent in obtaining reinforcement, but not behave accordingly in the daily course of his life (especially when questions measuring these beliefs are not always related to daily events in his life). He may not feel that his life is controlled by forces "out there," by luck or chance, yet still not be an effective causal agent. That is, a relationship between I-E control and the ECA construct may or may not exist.

METHODOLOGICAL ISSUES

In order to plan this investigation it was necessary to consider some methodological issues. The purpose of this study was to attempt a preliminary validation of the ECA construct and questionnaire. The fact that most of the previous studies which bear a relationship to this construct have been based on a construct and scale (i.e., locus of control) which is not always closely related to the daily experiencing and behavior of subjects (cf. pp. 17-18) may be one explanation of the variety of results found in the literature. Research based on White's concept of competence has been largely observational. In view of these facts, one aim of this investigation was to examine

the extent to which the ECA construct is better able to predict behavior than the I-E construct.

The ECA construct is considered to be a phenomenological variable based on actual behavior. As such, it was reasoned that differences in behavior on various experimental tasks should be evident among individuals who rated themselves as highly effective causal agents and those who did not. Consistently more appropriate (correct or adequate) behavior across tasks (task-appropriate behavior) should be evidenced by ECAs than by non-ECAs. This was not always the case in studies utilizing the I-E Scale (Lefcourt and Steffy, 1970; Rotter, 1966; Minton, 1967). Further, since awareness of control and positive feelings about the control are essential to the construct, individuals should be able to rate their past behavior and current daily behavior by means of a paper and pencil questionnaire. The study also examined certain aspects of the relationship between the internal-external control dimension and the ECA construct and between depression and ECA.

ECA and I-E Control

Although several studies reported by Rotter (1966) have found relationships between internal orientation and initiative in taking action to control the environment (Seeman and Evans, 1962; Gore and Rotter, 1963; Strickland, 1965), a study by Charde (in Minton, 1967) found that the

I-E Scale independent of the degree of social distance did not predict actual overt action. Rotter (1966) stated that individual prediction of performance in laboratory situations for college students has been only partially successful. "Apparently, the rather narrow range of internal-external control attitudes in college students and the strong situational determination of the competitive laboratory tasks limits prediction [p. 19]." Another study reporting conflicting results was done by Lefcourt and Steffy (1970). Using student nurses they tested performance on a level of aspiration task, a risk-taking (gambling) task, and a projective test measure. They did not find significant relationships with the I-E Scale, but found "pronounced" relationships among the performance variables. They reported two response patterns which they labeled task-appropriate and task-inappropriate responding (i.e., behavior which is suitable or expected for the task and behavior which is not suitable or expected). Their results showed that subjects respond in a consistent fashion across tasks. These findings contradict to a certain extent other research on the I-E dimension where measurements usually correlate with the subjects' ratings on the I-E Scale. However, they state that in the other experiments the focus was on the manner of responding, anxiety, time spent in decision making, etc., while in their study the emphasis was on performance. This and the

fact that subjects responded in a consistent fashion across tasks suggested that their findings could be interpreted within the model of the ECA. In fact, Lefcourt and Steffy labeled this consistent performance "competence." They also suggested that their failure to find a relationship between the I-E Scale and the behaviors studied might be attributed to the circumstances of test administration. Rotter (1966) also mentioned that, as with all personality measures, scores on the I-E Scale can be affected by testing conditions.

The failure of Lefcourt and Steffy to find a relationship between task approach behavior and I-E control may have been due to the fact that the I-E dimension is an expectancy variable, a verbal assessment of the subject's beliefs concerning the source of reinforcement, and not actually related to the experiencing and daily behavior of the subjects. That is to say, the discrepancy was not one of circumstance of test administration but one of theory.

To test the assumption that the ECA questionnaire is a more powerful instrument for estimating behavior than the I-E Scale, subjects classified by means of the I-E Scale were run through the same tasks as subjects classified by means of the ECA questionnaire. It was hypothesized that the difference between means for ECAs and non-ECAs for each dependent variable would be greater than the differences between means for Internals and Externals.

DEPENDENT VARIABLES AND HYPOTHESES

Three dependent variables were used to study the concept of the effective causal agent: effectiveness in an ambiguous situation, access to feelings, and depression.

Effectiveness in an Ambiguous Situation

In a performance variable such as an ambiguous task, some self-direction is necessary. Since the ECA by definition was assumed to have this element of control to a greater degree than the non-ECA it was expected that the ECA would not be as threatened by the ambiguity and would be able to complete the task with shorter latency times. An ambiguous sentence completion task was used as the ambiguous task in this study.

It was hypothesized that the ECAs would have significantly shorter latency times than non-ECAs on the ambiguous sentence completion task.

Access to Feelings

Because the ECA is in phenomenological control of his life, the ECA should have access to and acceptance of his feelings. Awareness of feelings can also help to enhance their distinctiveness. Thus, there should be a difference in performance on a differentiation of feelings task between the ECA and the non-ECA.

It was hypothesized that ECAs would show

significantly greater differentiation of feelings than non-ECAs as measured by a card placement task (Israel, 1970).

Depression

As mentioned earlier, Ferster (1965), using a behavioral model, proposed that the depressive does not receive a sufficient number of positive reinforcements so that his behavior is weakened and a depression set in. Isele (1970, personal communication) is also investigating the socio-environmental reinforcement conditions associated with depression. The reasoning behind these behavioral or reinforcement models of depression is closely allied with that of the ECA construct. Just as the depressive's behavior is weakened through lack of reinforcement, so the individual who has little effect on his environment becomes a non-effective causal agent. This suggested that the person who rated himself low on the ECA questionnaire would also be on the depressive end of a depression scale. The Self-Rating Depression Scale (Zung, 1965) was used to measure depression.

It was hypothesized that non-ECAs would show greater tendencies toward depression than ECAs.

Chapter 2

METHOD

SUBJECTS

Subjects were 77 undergraduate students from the introductory psychology course at the University of Montana. Subjects were volunteers selected from a pool of 287 students on the basis of their ratings on a one-day sample of the ECA questionnaire. They received laboratory credit for their participation. Subjects were chosen from the center and extremes of the distribution. Primary interest was in the high and low groups, but a mid-ECA group was included to provide continuity and as a check on curvilinearity across all variables. Additional subjects were used to test hypotheses across the I-E dimension. They were selected from the upper and lower one-fourth of the I-E Scale distribution.

Subject Selection

During the first class period of the quarter all students present in the introductory psychology class were asked to fill out a General Information Questionnaire (Appendix A), an ECA Questionnaire for the previous day

and to complete an I-E Scale. From this sampling of 287 students, potential Ss were contacted by telephone. A brief description of the amount of time that would be involved and the general purpose of the study were given to each student at this time. Subjects were selected by calling the most extreme scorers, working toward the center of the distribution until enough students to fill the desired number in each group had agreed to serve as Ss. Subjects for the mid-ECA group were selected by working alternately in each direction from the median point of the distribution. To secure the desired number of Ss it was necessary to contact students ranging approximately through the upper, lower and middle quartiles of the distribution. A similar procedure was followed to obtain Ss for the I-E groups. However, only a high and low group were used.

The optimal design for the experimental tasks called for 20 Ss in each of the three ECA groups and 10 in each of the I-E groups. Some attrition was expected, so that 100 Ss were recruited initially. Subjects were assigned to groups as follows: High ECA, $N = 24$; Mid-ECA, $N = 23$; Low ECA, $N = 25$; Internals, $N = 14$, and Externals, $N = 14$. All of these Ss kept a three-week ECA record. Internals and Externals kept an ECA record to control for any effects the record keeping itself might have on performance. The extreme scorers were to be selected from these 100 Ss to comprise the experimental groups for

statistical analysis. However, attrition was greater than expected, and such selection was not possible. A total of 77 subjects remained for analysis, distributed among groups as follows: High ECA, $N = 20$; Mid-ECA, $N = 18$; Low ECA, $N = 20$; Internals, $N = 10$; and Externals, $N = 9$. Analysis of the one-day sample of ECA scores indicated a negligible correlation between sex and ECA ($N = 287$, $r = .130$), so no effort was made to control for sex. A summary of the composition of the experimental groups can be found in Table I.

TABLE I
DISTRIBUTION OF SUBJECTS WITHIN
EXPERIMENTAL GROUPS

Group	N	Male	Female
High ECA	20	10	10
Mid-ECA	18	13	5
Low ECA	20	10	10
Internals	10	5	5
Externals	9	6	3
Totals	77	44	33

INSTRUMENTS

Effective Causal Agent (ECA) Questionnaire

The ECA Questionnaire (which was referred to as the ECA Scale when used with Ss) was developed as a method for individuals to measure the subjective effectiveness of

their daily behavior. Instructions included operational definitions of effective and non-effective causal agent behavior, and an attempt was made in the wording not to bias Ss in regard to either type of behavior. A copy of the questionnaire can be found in Appendix A. The questionnaire consisted of five activities or aspects of daily life and four categories of interpersonal relations in which subjects were asked to rate their feelings of effectiveness daily. They were also asked to estimate the percentage of waking time spent in each activity and interpersonal relation. Time spent in daily activities and interpersonal relations were estimated separately, and each was required to total 100 percent. (No formal hypotheses were made concerning the time spent in each area. This measure was included for exploratory purposes.) To score the questionnaire, the percentage of effectiveness was summed across all items. The total sum was multiplied by 10 to obtain an ECA index. The indices for each day the record was kept were summed, and this sum was divided by the total number of days to determine the mean ECA index. The mean ECA was the subject's ECA score for purposes of this study.

The original questionnaire consisted of five items. A small pilot study was conducted to determine whether, in fact, people could use the questionnaire. (Data from this study can be found in Appendix B.) Findings of the

pilot study suggested that there was some ambiguity and overlap in the items and that the questionnaire should be expanded. Accordingly the present nine-item questionnaire was developed. This was tested on another small sample. The ECA Questionnaire differentiated subjects in two therapy groups at the Clinical Psychology Center at the University of Montana, one of which was considered by members of the therapy team to be less well-adjusted than the other. (Judgments were based on personal interviews and a social isolate scale which was being developed at the university.) The group judged as less adjusted scored significantly lower (i.e., in a non-ECA direction) than the better adjusted group ($t = 2.25$, $df = 16$, $p < .025$). Data from this study can be found in Appendix B.

Internal-External Control (I-E) Scale

The I-E Scale was used in this study to examine the relationship between the I-E control dimension and the ECA construct. A number of attempts were made by Rotter and his associates to develop a measure of individual differences in attitudes of internal-external locus of control. The first scale, developed by Phares and James (cf. Rotter, 1966), used Likert type items. Later a forced-choice format was developed, and revisions were made to control for social desirability and low item validity. The final version of the scale (Rotter, 1966)

consists of 23 critical items and six filler items (see Appendix C). Thus, the complete scale consists of 29 items and is scored by counting the number of external items selected. The general procedure followed in most investigations is to determine the mean score for the sample being studied. Those scoring above the mean are labeled externals and those scoring below the mean are labeled internals. Validity and reliability data for the I-E Scale are presented in Appendix D.

Self-Rating Depression Scale (SDS)

The SDS (see Appendix E) is a clinical instrument designed for differentiating depressed patients from patients with other emotional problems. The SDS is composed of 20 items based on clinical diagnostic criteria used to characterize depressive disorders in terms of mood and biological and psychological disturbances. Subjects are asked to rate each of the items on a scale indicating how the item applied to them at the time of testing. Ten of the items are worded symptomatically positive and 10 are worded symptomatically negative. Raw scores are converted into an SDS index by dividing the sum of the raw score values obtained by the maximum possible score of 80 converted to a decimal and multiplied by 100. Normative data and a table for the conversion of scores is found in Zung (1965). Reliability and validity

data are presented in Appendix F.

Card Placement Task

The Card Placement Task was used in the present study to investigate differences in affect discrimination (access to feelings). Following the suggestion of Campbell and Fiske (1959) Israel (1970) analyzed a trait labeled "affect discrimination" for the assessment of reliability and validity using two other traits (spontaneous change and perceived similarity) and three experimental methods (weight lifting, line drawing and card placement). Affect discrimination refers to "the degree to which an individual is capable of discriminating between various 'internal' feeling (or affective) states [Israel, 1970, p. 22]." Presumably the ECA possesses this trait to a greater degree than the non-ECA (see p. 23). According to Israel, validity correlations for affect discrimination were significantly different from zero in three out of six cases. These coefficients were .37, .39 and .43, lending evidence for convergent validity. Validity coefficients for affect discrimination were higher than correlations in their respective rows and columns within the heterotrait-hetero-method triangles except for three cases (out of a possible 22), lending some evidence for discriminant validity, since a validity value for a particular trait should be higher than

correlations obtained between measures of that trait and those of any other trait, especially since they have been measured by means of different tasks.

A test-retest correlation of .86 was obtained for the Card Placement task as it measured affect discrimination. The task also differentiated between patients producing coarctated Rorschach protocols and those producing dilated protocols.¹ This difference between groups of patients was significant ($F = 4.30$, $df = 3$, $p < .05$). Also, a Duncan's New Multiple Range Test showed significant differences, as predicted, between the coarctated and dilated protocol subject groups. The above evidence was construed as confirming the hypothesis that persons who produced dilated protocols would be better able to discriminate affective states.

In summary, Israel states that the Card Placement Task "would appear to be a fairly sensitive device for assessing certain 'spacial [sic] orientation' characteristics of an individual's affective experience and . . . his degree of Affect Discrimination [p. 91]." Although Israel did not consider the task appropriate as a diagnostic tool, he considered it useful in the investigation

¹Coarctated protocols are those in which both color and movement responses are very few in occurrence. This generally is associated with flattened affect, and is characteristic of depressions, depression-like neuroses, generally inhibited normal persons, etc. Dilated protocols are assumed to indicate sensitivity to emotionally stimulating situations, and are determined by characteristics opposite those of coarctated protocols.

of differences between groups. Thus the task was thought to be appropriate for differentiating between experimental groups in the present study.

The task involves having the subject place a number of circular cards, one at a time, on a large, flat, undifferentiated surface. Names of different affective states are typed on the cards. The following adjectives were used: angry, joyful, amazed, fearful, sorrowful, and disgusted. The greater the distance between the cards, the greater the degree of psychological differentiation of affective states that the S experiences. The apparatus consists of a 4 x 8 foot flat, undifferentiated surface (standing approximately 30 1/2 inches from the floor) upon which S moves a series of white round cards. The cards are 2 1/4 inches in diameter and are cut from white, unlined index cards. The undifferentiated surface was in a room measuring 5 1/2 x 8 feet, which provided just enough room for S to be seated (front center) and to move the cards about with the aid of a rubber-tipped pointer (32 3/4 inches long).

Ambiguous Sentence Completion Task

To test the performance (effectiveness) of subjects in a task involving ambiguity (see p. 22), a sentence completion test devised by MacKay (1966) was used. MacKay, in a study designed to gain insight into the

manner in which ambiguous sentences are normally understood, developed a set of ambiguous sentence fragments which subjects were to complete. The fragments were so constructed that the ambiguities occurred at different linguistic levels. In addition, one group of sentence fragments contained multiple ambiguities. The linguistic levels used were the underlying structure level, the surface or derived structure level, and the lexical or word level. Underlying structure ambiguity involves only a change in the essential relations between words. Surface (derived structure) ambiguity involves a change in the manner in which words are grouped into phrases, and lexical ambiguity involves a change in the dictionary meaning of a word or phrase.

MacKay's (1966) results showed that subjects took more time to complete ambiguous sentences than structurally corresponding unambiguous ones even though they may have been unaware of the ambiguity. (Differences were significant at the .01 level, using a Mann-Whitney U test.) For purposes of the present study this finding suggested that it was the ambiguity involved rather than some other factor, such as verbal or intellectual ability, which contributed to the different completion times. However, to investigate the possible relationship between such ability and the ambiguous sentence task, scores were correlated with the subjects' composite scores on the

American College Testing Program (ACT). The ACT was selected because scores for a large percentage (71%) of the subjects were available from the University Counseling Center. Time was too limited during the experimental hour to administer an intelligence or ability test. The composite test score of the ACT is a mean of four educational development scores (English, mathematics, social studies and science). Scores are reported as standardized scores with a mean of 17.5 and a standard deviation of 6.4. The ACT is considered to tap reasoning and understanding more than specific subject knowledge (Traxler and North, 1966).

Since the present study was not concerned with examining the manner in which ambiguous sentences are understood, but only in the differential behavior of subjects in a task involving ambiguity, only the sentences with multiple ambiguities were used. These 21 sentences had significantly long completion times (MacKay, 1966) and contained all the levels of ambiguities and sentence types (see Appendix G). Information concerning the structure of the sentences and degree of difficulty is presented in Appendix G.

The sentence fragments were typed on 3 x 5 inch unlined index cards. Latencies for each sentence were summed to provide a total latency score for this task. Fluidity was measured by counting pauses and verbalizations

such as "ah" and "er." (No hypotheses were stated concerning these measures, but it was thought they might yield information of interest.)

PROCEDURE

Administration of the Three-Week ECA Questionnaire and the Self-Rating Depression Scale

Two weeks following the administration of the initial ECA Questionnaire and the I-E Scale and the selection of Ss, all Ss were required to meet together for one hour. During this time they were given a three-week supply of ECA forms, detailed instructions for completing them, and were asked to complete an SDS. The general purpose of the experiment was again explained and ample opportunity was given to ask questions. During this period the Ss also selected the time for their experimental task appointment.

A posttest SDS was given to each subject following his completion of the experimental tasks.

Card Placement Task and Ambiguous Sentence Task

Administration of the experimental tasks was begun on the day immediately following the initial meeting described above. Approximately four weeks were required to complete this phase of the study. The tasks were

administered in counterbalanced order.

Verbatim instructions for the Card Placement Task appear in Appendix H. Subjects were seated in the experimental room and were given these instructions by means of a tape recording. E was present in the room and answered any questions by paraphrasing or repeating the taped instructions. Following this, E left the room. The cards were presented in random order. In each case S was instructed to move only one card at a time and to notify E by means of a buzzer when he had finished with it. E then entered the experimental room and removed the card from the surface, marking its position on a location chart which utilized a wall pattern in the experimental room as a scoring grid (see Appendix H). Scoring was accomplished by measuring the distances between all possible pairs of card locations and summing these distances.

Following this task E was seated opposite S in another room, and the ambiguous sentence task was administered. Instructions were read to S (see Appendix H). E presented each card, face down, to S. E recorded latencies, completion times, and noted any unusual behaviors. A tape recording was used to record the completions. The recordings were not saved, but were used to convince Ss of the importance of making a relevant completion. Each trial required about 25 seconds. The cards were thoroughly

shuffled for each S in order to eliminate any systematic interaction between one sentence and the following ones. (Each card had a number on the back so that E could record which sentence was being completed without having to write the entire sentence fragment.)

When both tasks were completed S was asked to complete the SDS, asked not to discuss the tasks with anyone, thanked for participation and informed that he would be debriefed when everyone had completed the experiment.

Debriefing Statement and Posttest Questionnaire

During the first laboratory period following the week in which all Ss completed the experiment, the laboratory instructor distributed the debriefing statement and a posttest questionnaire to the S. A copy of the statement and questionnaire can be found in Appendix I.

Chapter 3

RESULTS

ECA QUESTIONNAIRE

Mean ECA scores and standard deviations for the three ECA experimental groups are presented in Table II. The mean for the three groups combined was 36.86, with a standard deviation of 11.44. Standard deviations for the individual groups were considerably smaller, as might be anticipated from the manner in which Ss were assigned to groups (see pp. 25-26). ECA indices ranged from 56.08 to 12.41.

TABLE II
MEANS AND STANDARD DEVIATIONS FOR THE
ECA QUESTIONNAIRE

Group	N	Mean	Standard Deviation
High ECA	20	48.89	3.297
Mid-ECA	18	37.76	4.760
Low ECA	20	24.02	5.839
All groups combined	58	36.86	11.440

To assess the reliability of the ECA Questionnaire a product moment correlation between the first week ECA

index and the third week index was computed. A correlation of .78 was obtained ($p < .005$).

Correlations between the ECA Questionnaire and the I-E Scale ($N = 77$, $r = .207$) and between ECA and ACT scores ($N = 59$, $r = .11$ [see p. 44]) were low as anticipated and necessary to establish discriminant validity.

DEPENDENT VARIABLES

Results of the data analysis for the three dependent variables, depression, access to feelings and effectiveness in an ambiguous situation, are summarized in Table III and Table IV. Table III contains means and standard deviations, and Table IV lists differences between means and their t -statistics.

Depression (SDS)

The correlation coefficient for the first and second administration of the SDS was .77 ($N = 77$, $p < .005$). Time between administrations ranged from 1 to 30 days. The obtained correlation was considered to be of great enough magnitude to warrant using the average score of the two administrations in computing mean differences between groups. Reference to Table III shows that, as hypothesized, subjects tended to be more depressed as they rated themselves as less effective causal agents. Although no specific hypotheses were made for the

TABLE III

MEANS AND STANDARD DEVIATIONS OF SDS (DEPRESSION), CARD PLACEMENT
TASK (ACCESS TO FEELINGS) AND SENTENCE COMPLETION TASK
(AMBIGUOUS SITUATION) SCORES

Group	SDS***		Card Placement (Distance in Inches)**		Sentence Comple- tion (Latency in Seconds)*	
	Mean	SD	Mean	SD	Mean	SD
High ECA (N = 20)	41.825	8.510	41.54	15.75	278.35	116.10
Mid=ECA (N = 18)	41.860	9.131	40.94	14.84	414.78	277.90
Low ECA (N = 20)	48.375	11.132	40.31	16.43	356.00	195.96
Internals (N = 10)	38.150	5.613	45.93	17.92	440.10	384.82
Externals (N = 9)	45.940	9.078	42.83	16.85	299.33	82.46

*** Low score = depression

** High score = task appropriate behavior

* Low score = task appropriate behavior

TABLE IV

DIFFERENCES BETWEEN MEANS FOR THE EXPERIMENTAL GROUPS
ACROSS THE DEPENDENT VARIABLES: SDS (DEPRESSION),
CARD PLACEMENT TASK (ACCESS TO FEELINGS),
AND SENTENCE COMPLETION TASK (AMBIGUOUS
SITUATION)

Groups	Mean Differences	t	df
SDS SCORES			
High vs. Mid-ECA	.035	.012	36
High vs. Low ECA	7.000	1.969**	38
Mid vs. Low ECA	6.515	1.959**	36
Internals vs. Externals	7.790	2.278***	17
CARD PLACEMENT TASK SCORES			
High vs. Mid-ECA	.596	.1197	36
High vs. Low ECA	1.230	.2420	38
Mid vs. Low ECA	.634	.1240	36
Internals vs. Externals	3.100	.3870	17
SENTENCE COMPLETION TASK SCORES			
High vs. Mid-ECA	136.430	2.010**	36
High vs. Low ECA	77.650	1.520*	38
Mid vs. Low ECA	58.780	.760†	36
Internals vs. Externals	140.770	1.070†	17

* $p < .10$

** $p < .05$

*** $p < .025$

† Not in expected direction

Mid-ECA group, logically it was expected that this group would score somewhere between the high and low groups. This expectation held for the depression variable, as can be seen in Tables III and IV. There was no significant difference between means for the High and Mid-ECA groups. However, reference to Table IV shows that both the High and the Mid-ECA groups were significantly less depressed than the Low Group ($p < .05$). The Internal group was less depressed than the External group ($p < .025$). All depression score differences were in the expected direction. Zung (1965) considers Ss scoring 50 or above as individuals needing treatment for depression (i.e., clinically depressed). Sixteen of the total 77 Ss, or 20.8 percent of the experimental sample met this criterion of clinical depression. Half of the clinically depressed Ss were found in the Low ECA group; the remaining eight were scattered among the other groups. Scores for the clinically depressed Ss ranged from 50 to 70. Table V summarizes the distribution of depressed Ss among the experimental groups. A scatter plot of the ECA-SDS data for the entire sample was made (see Appendix J). Post hoc binomial tests (Siegel, 1956) were applied to the frequencies within the four quadrants of the scatterplot. The frequency of High ECAs who were not clinically depressed was significantly greater than the Low ECAs who were not depressed ($p < .01$); the frequency of clinically depressed

Low ECAs versus clinically depressed High ECAs was significant at the .01 level; a highly significant proportion of High ECAs were not clinically depressed compared with High ECAs who were depressed ($p < .00003$); and the distribution of Low ECAs who were not depressed versus Low ECAs who were depressed was significant at the .13 level.

Results of the binomial tests are summarized in Table VI.

Access to Feelings

For the Card Placement task, which was designed to measure affect discrimination (access to feelings), means ranged from 41.54 inches for the High ECA group to 40.31 inches for the Low ECA group; and from 45.93 inches for Internals to 42.83 inches for the Externals (see Table III). Mean differences for the experimental groups were in the expected direction, but were not statistically significant (see Table IV).

Effectiveness in an Ambiguous Situation

The correlation coefficient for ACT and Sentence Completion Task latency scores was $-.137$. (A high ACT score and a low latency score are indicative of successful performance.) The obtained correlation is negligible and nonsignificant.² Task appropriate behavior on the Sentence Completion Task was indicated by short total latency

²ACT scores were available for 59 of the total 77 Ss in the experimental sample.

TABLE V

DISTRIBUTION OF Ss SCORING 50 OR ABOVE ON THE
SELF-RATING DEPRESSION SCALE

Group	N	Percent of Total (Total N = 77)
High ECA	2	2.6
Mid-ECA	3	3.9
Low ECA	8	10.4
Internals	0	0
Externals	3	3.9
	<u>16</u>	<u>20.8</u>

TABLE VI

BINOMIAL TEST SUMMARY FOR DEPRESSION AND ECA

	f	z	p
DEPRESSED			
High ECA Ss	3	*	.01
Low ECA <u>Ss</u>	13		
NOT DEPRESSED			
High ECA Ss	40	2.301	.01
Low ECA <u>Ss</u>	21		
HIGH ECA			
Depressed	3	5.49	.00003
Not depressed	40		
LOW ECA			
Depressed	13	1.203	.13
Not depressed	21		
	<u>77</u>		

* Significance level determined from table (Siegel, 1956)

scores across the 21 sentences. High ECAs had a lower mean total latency (278.35 secs.) than did Low ECAs (356.00 secs.). The difference between these means was significant at the .10 level. (See Table III for a summary of means and Table IV for mean differences and significant levels.) The mean for the Mid-ECA group was 414.78 secs. This is significantly higher ($p < .05$) than the High ECA group. It is also higher than the Low ECA group (as would be expected) but the difference was not significant. This result is not in the expected direction.³ Mean latency score for the Internals was 440.10 secs. and for Externals, 299.33 secs. The difference between these means is not significant and is not in the expected direction. Disfluency scores and completion times (measures included for information purposes, see p. 32) did not yield data which contributed in any way to the investigation, so specific results are not included.

ECA Versus I-E as a Predictor of Performance

The differences between means for ECA groups and the I-E groups across all variables were not formally tested. It was evident from inspection of the data which

³Two subjects in the Mid-ECA group had extremely long latencies which may have distorted the mean value for this group.

differences were clearly demonstrated and which were not. Differences between I-E groups for the SDS (depression) variable reached significance at the .025 level, while differences between ECA groups (High vs. Low and Mid vs. Low) reached significance at the .05 level (see Table IV). However, inspection of scatterplots (see Appendix I) revealed that without the mid group on the ECA dimension the frequency distribution for ECA-SDS is similar in pattern to the I-E-SDS distribution. None of the differences were significant for the access to feelings (Card Placement Task) variable. Differences between High and Low ECA groups on the variable concerned with effectiveness in an ambiguous situation (Sentence Completion Task) were significant at the .10 level, but did not reach significance for the I-E groups.

Chapter 4

DISCUSSION

Results of this preliminary study in general supported the initial hypotheses concerning the existence and measurability of the variable which is termed the effective causal agent. First, findings indicated that Ss were able to make subjective ratings of the effectiveness of their daily behavior using the ECA Questionnaire. Subjects rated their behavior for a period of three weeks. To assess the reliability of the questionnaire the average ECA score for the first week was correlated with the average score for the third week. The questionnaire proved substantially reliable. Although results for only 77 Ss were analyzed across the various dependent variables, a total of 96 Ss kept daily ECA records of their behavior. Of those Ss lost from the study, only one was dropped because the instructions were apparently not understood. Thus the mechanics of the record keeping seem fairly simple once the instructions have been given.¹

¹Instructions were presented orally at the initial meeting of all Ss and also included in written form with each set of forms. At the present stage of development, it seems advisable to present the instructions for using the questionnaire orally, with a demonstration by E, so that one is relatively sure the method is understood.

Instructional set and demand characteristics were such that an adequate range of ECA indices was obtained. Subjects were urged to report honestly how they felt each day and to expect variations in their feelings and behavior. The cooperation of Ss was requested so that information could be gathered to help validate a new personality construct. In other words, an effort was made to make them feel a part of a scientific endeavor. An attempt was made not to bias Ss or place value judgments on the possession or lack of ECA feelings although inevitably some value connotation is inherent in the meanings of the words "effective causal agent." However, an optimistic interpretation of the range of scores suggested that Ss were honestly reporting their subjective ratings and not attempting to appear as either possessing or lacking the ECA quality to an extreme degree. Inspection of individual daily records revealed variability which also supported this interpretation. That is, Ss were reporting actual fluctuations in their feelings and behavior. Further corroboration for the supposition that Ss were trying sincerely to assess their behavior and feelings came from comments on the posttest questionnaire such as, ". . . it made me think more about what I was doing"; "I saw the relationship between my effectiveness and that which I considered a bummer of a day"; and "I found it interesting to see how my feelings changed from

day to day."

Four hypotheses were stated at the beginning of the investigation: (1) the difference between means for ECAs and non-ECAs for each dependent variable would be greater than the differences between means for Internals and Externals; (2) ECAs would have significantly shorter latencies than non-ECAs on the ambiguous sentence completion task; (3) ECAs would show significantly greater differentiation of feelings than non-ECAs as measured by a card placement task; and (4) non-ECAs would show greater tendencies toward depression than ECAs.²

The first hypothesis, concerning the relationship between the I-E variable and the ECA variable, expressed the expectation that the ECA construct would be a better predictor of performance than the I-E variable. This hypothesis was not supported. On the depression variable mean differences suggested that the I-E variable had a slight advantage in prediction. However, inspection of scatterplots and binomial tests of frequencies within the scatterplot quadrants suggested that this was not the case. Differences tended to be minimal. In fact, it could be said that depression predicted to ECA and I-E rather than vice versa. The ECA was a better predictor for performance in an ambiguous situation, and

²During the experimental portion of the investigation ECAs and non-ECAs were referred to as High ECAs and Low ECAs respectively.

neither ECA nor I-E could predict at a significant level on the access to feeling dimension. Thus, on a simple quantitative basis, the ECA might have a slight advantage, but further research is needed before any significant claims can be made. The low correlation between ECA and I-E scores suggested that as theorized the two instruments were tapping somewhat different dimensions. Logically, from these results, the ECA and the I-E Scale combined should predict better than either used alone.

The second hypothesis concerned the comparison of performance between ECAs and non-ECAs in an ambiguous situation. An ambiguous sentence completion task was used to test this hypothesis. Differences in performance on this task were attributed by McKay (1966) to the level of ambiguity in each sentence. To further confirm this position, ACT scores for Ss were correlated with Sentence Completion Task scores. This correlation was negligible. It seemed safe to assume that ambiguity was the important factor and that differences in performance were a function of the S's effectiveness in an ambiguous situation rather than the S's ability per se. It was predicted that ECAs would be able to perform better in the face of ambiguity. That is, it was assumed that ECAs would not be as threatened by an ambiguous situation and would have the self-direction necessary to complete the task with shorter latency times. The

prediction was confirmed at the .10 level. In this task the Mid-ECA group had two subjects with deviant scores. These may have distorted the mean and results for this group were not in the expected direction, that is, lying between the high and low groups.

The third hypothesis, predicting that High ECAs would have greater access to feelings than Low ECAs, as measured by the Card Placement Task, was not confirmed. While the resulting scores were in the expected direction, High ECAs and Internals showing greater discrimination of feelings, none of the differences between means reached significance. This was a new task which was demonstrated to be reliable in a study using university students, and shown to discriminate among groups of hospitalized psychiatric patients using Rorschach protocols as an external criterion. One explanation for the fact that differences between groups in the present investigation failed to reach significance might be that the experimental groups were selected from a fairly homogeneous university student population compared with Israel's (1970) psychiatric population. Experimental studies dealing with the affective states within individuals have been primarily exploratory in nature and relatively little has been done in the measurement area (Israel, 1970). Thus, it is possible that the card placement task was not adequate for the purpose it was

used in this study. However, because of the nonsignificant results, no conclusions could be reached nor inferences made concerning the prediction that ECAs, because they are in phenomenological control of their lives, have better affect discrimination than non-ECAs.

The final hypothesis concerned the relationship between depression and the ECA construct. Depression was measured by a brief self-rating depression scale (SDS). The SDS was administered to Ss at the outset of the experiment, prior to their three-week behavior rating period. The instrument was again administered at the close of each S's experimental task participation. The correlation was high enough to assume that participating in the experiment had no significant effect on the S's depression scores. Therefore, an average of the scores from the two administrations was taken and used in the statistical analysis. As hypothesized, less effective causal agents scored toward the depressed end of the scale. Differences between the High ECA group and the Low ECA group and between the Mid-ECA group and the Low ECA group were significant at the .05 level. The difference between the High and Mid-ECA groups was in the expected direction, but did not reach significance. However, no formal hypotheses had been made concerning the Mid-ECA group because primary interest was in differences between the High and Low groups. The difference

between the High and Low ECA groups may have additional meaning when one considers that of 77 Ss only 16 were rated as clinically depressed according to the scale's criterion. Analysis of the frequency distribution of subjects along the ECA-depression dimension yielded highly significant results. ECAs were significantly represented in the nondepressed direction, and non-ECAs in the depressed direction. A highly significant proportion of ECAs were classified as nondepressed just as a significant proportion of depressed Ss were Low ECAs. Viewing this from another perspective, the proportion of Low ECAs who were depressed compared with those who were not depressed was not significant. In contrast, the proportion of ECAs who were not depressed compared with those who were was highly significant. Thus, the hypothesized relationship between depression and ECA is well substantiated, although it would be safer to predict that if an individual is an ECA he will not be depressed than to predict that if he is a Low ECA he will be depressed. Depression predicts to ECA better than ECA predicts to depression.

Preliminary discriminant validity was demonstrated by low correlations between the ACT and ECA scores and between the ECA and I-E scores. No hypotheses were stated concerning the relationship between ability/intelligence and ECA. The primary purpose of using ACT scores was to

validate the importance of ambiguity as the primary variable in the Sentence Completion Task. The correlation between ACT and ECA was performed post hoc, and caution must be used in interpreting results. However, the obtained correlation was sufficiently low to warrant the hypothesis that ECA and ability/intelligence are largely independent. More rigorous tests should be made however. The low correlation between I-E and ECA would tend to support the contention made earlier that a relationship between I-E and ECA need not exist.

Although not all hypotheses were supported, the significant findings for the ECA-depression relationship and the ECA-ambiguous sentence task provided convergent validity for the ECA construct. Therefore, the overall results of this investigation indicated that further research into the nature of the ECA construct would be appropriate.

The ECA Questionnaire should be analyzed to determine which items weigh most heavily in the total score. It is possible that some items should be eliminated from the questionnaire. The relationship between time spent in an activity and effectiveness in the activity should be examined, as well as the range of activities for high scorers compared with low scorers. For example, do High ECAs spend their time in a variety of activities and have a greater range of interpersonal relations than do

Low ECAs? In other words, a careful analysis of the individual ECA forms should be made, taking into consideration all possible sources of information instead of considering only the total score as was done in the present, initial investigation.

Inspection of the scatterplots for I-E, ECA and depression suggested that if the sample were cut at the mean, as is done with the I-E Scale, ECA would predict as well as I-E. Also I-E and ECA scores could be standardized and a combined index obtained to ascertain if the combined index is a better predictor of behavior than the instruments used separately. The available data could be used in a post hoc comparison.

Further convergent and discriminant validity should be established through experimentation with behavioral tasks and correlations with other instruments. Rotter (1966) concluded that the strong situational determination of the competitive laboratory tasks limited prediction of behavior in investigating his I-E construct. The same restriction may hold for the ECA construct. Hopefully a task more nearly simulating "real life" situations could be constructed which would minimize the laboratory determinants. Another approach would be to select subjects according to a judge's ratings of the person's ECA quality. For example, department chairmen might be asked to select students they considered to be the most

effective causal agents and those who were the least effective. These subjects might then be compared across a variety of tasks and also asked to rate themselves by means of the ECA questionnaire.

Possibilities for further validation include comparisons of ECA scores with scores on such instruments as the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe, 1964), the Machiavelli Scale (Christie, 1970), and intelligence test, correlations with age, sex, educational level and so on. It might also be possible to determine personality correlates of the ECA by using an instrument such as the Personality Research Form (Jackson, 1967) or the California Personality Inventory (Gough, 1964). A broader population of subjects should also be studied, including psychiatric patients.

Finally, therapeutic use of the ECA Questionnaire could be investigated. Posttest questionnaire replies indicated that keeping the daily record made subjects more aware of their behavior, of their feelings, and of the relationship between behavior and feelings. Thus, there were indications that the Questionnaire could be used to focus the S's (patient's) attention on his behaviors and feelings. Although beyond the scope of the present investigation, the etiological/therapeutic role of attention or awareness is generally acknowledged and has been discussed by such authors as Ullman and

Krasner (1969), Bandura (1969) and Mahrer (1966).

Chapter 5

SUMMARY

A personality construct, the effective causal agent (ECA), was proposed. The ECA was said to feel that he is in control of himself and his world and to feel that he is in a healthy psychological state. The ECA was defined as an individual who is in phenomenological control of the events of his life and who gains satisfaction from the fact that he is in control.

An ECA questionnaire was developed to assess an individual's feelings that he is or is not effective across a variety of tasks and in relationships with a variety of people. The ECA Questionnaire was shown to be reliable. As hypothesized, Ss who were classified as low or non-ECAs scored on the depressive end of a depression measure and high ECAs scored on the non-depressed end of the measure. High ECAs performed better in an ambiguous situation. There was no difference among experimental groups in a task designed to measure access to feelings. Neither the ECA nor the I-E Scale was found to have the advantage in predicting performance across the dependent variables. Low correlations were found

between the I-E Scale and the ECA variables and between the ACT and the ECA, suggesting that in addition to convergent validity in the depression variable, there was evidence of discriminant validity among ECA, I-E and ACT. Suggestions for further research were made.

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APPENDIX A

EFFECTIVE CAUSAL AGENT (ECA)
QUESTIONNAIRE

This is a self-rating scale by means of which you can rate the way you feel about how effective you are in causing things to happen in your life. Each day you are to rate yourself in the areas indicated on the following pages. You are to estimate the percentage of time you feel that you are effectively coping with these events in your life. You will be asked to rate yourself in such areas as leisure time, school work and job, and also how effective you felt in your interpersonal relations.

For example, on some days everything seems to go just right, just as you planned. You really feel effective and have caused things to happen in your life. On a day such as this you might indicate that you were close to being effective 100% of the time in each of the areas. In contrast, on another day everything may seem to go wrong--nothing works the way you would like. You may feel you are just existing or drifting along doing nothing to control your own life. On this day you might check 5% or 10% effective in each area. On other days some things go your way, others do not. You might then check, for example, 15% in one area and 80% in another.

Rating scales for each day are provided on the following pages. There is a page for each day. Please indicate the percentage of time for each day that you felt you were effective in each of the areas by placing an "X" through the graph at the approximate percentage point. In addition, there is a blank to the right of each scale. You are to estimate the percentage of waking time that you spent in each area and write this percentage in the blank to the right of the scale. There are two general categories to be rated: one is concerned with events and activities and the other with people. Scales 1 through 5, dealing with activities, should equal 100% of your time. Scales 6 through 9, which ask you to rate your effectiveness in relating to people, should also total 100%. Both sets of scales are to be filled out in the same manner.

NOTE: The Effectiveness scale and the blank to the right for estimating percent of the total time spent in the activity need not be the same. For example, you might check that you felt effective 45% of the time, but spent 60% of your total time that day engaged in that activity.

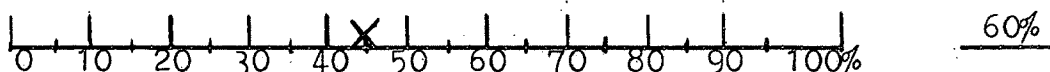
EXAMPLE

EFFECTIVENESS RATING SCALE

Percentage of time you feel you were
effective during:

% OF TOTAL TIME
ACTUALLY SPENT
IN THIS CATEGORY

1. Activities related to school work:



Please keep this record for a period of three weeks,
beginning today.

IMPORTANT: It is essential for compilation and analysis of the data that (with the exception of the weekend data) your daily record be returned the morning following the day for which the record was made. That is, return forms for Friday, Saturday, and Sunday on Monday morning. The form for Monday should be returned Tuesday morning, and so on. A box will be placed in the Graduate Student Room on the west end of the first floor of the Psychology Building. PLEASE PLACE YOUR FORMS IN IT DAILY.

DATE: _____

NAME: _____

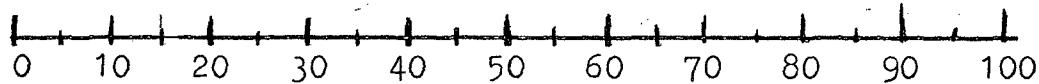
The Effectiveness Scale indicates the percentage of time you felt effective while engaged in an activity or while being with various people. The blank to the right indicates the percentage of your total time that you spent in that activity or with those people. The percentage you mark on the Effectiveness Scale need not be the same as the percentage you mark on the blank to the right. If an item does not apply to you mark 0 in both places. No particular total is necessary for the Effectiveness Scale.

EFFECTIVENESS SCALE

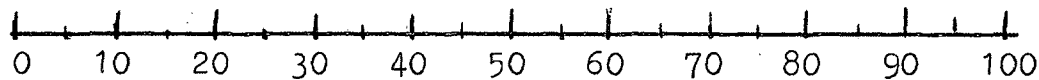
%-age of time you feel you were effective during:

% OF TOTAL TIME ACTUALLY
SPENT IN THIS CATEGORY

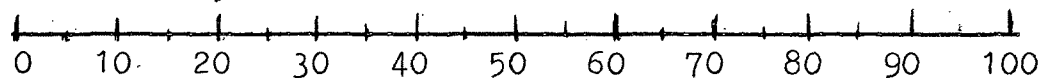
1. Leisure time (loafing, recreation, etc.)



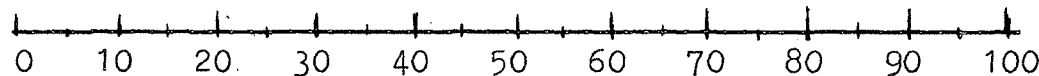
2. Activities related to school work:



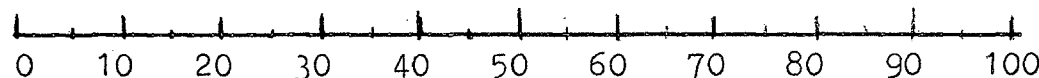
3. Activities connected with clubs, church, etc.:



4. Activities related to your job:



5. Activities not included in the above categories:



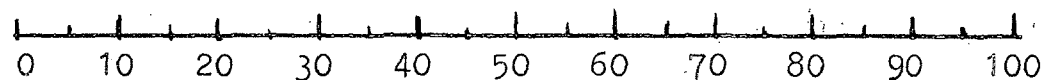
Total _____
Must Equal 100%

EFFECTIVENESS SCALE (Cont'd.)

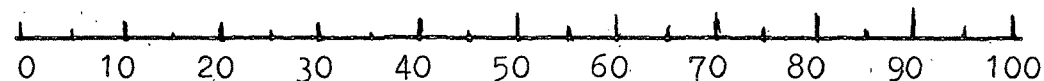
%-age of time you feel you were effective while
with:

% OF TOTAL TIME ACTUALLY
SPENT IN THIS CATEGORY

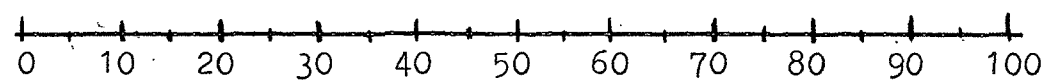
6. Members of your family:



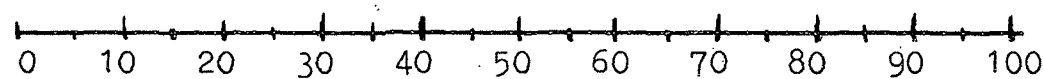
7. Friends:



8. People other than friends and family:



9. If you spent time alone, indicate how effective
you felt when you were alone:



Total _____
Must Equal 100%

GENERAL INFORMATION QUESTIONNAIRE

Self-Rating Effectiveness Study

1. Name: _____ Laboratory
Section No.: _____
2. Address: _____
3. Telephone: _____
4. Sex: M F
5. Class: Freshman Sophomore Junior Senior
6. Major: _____
7. Age: _____

APPENDIX B

DATA SUMMARY, PILOT STUDY NO. 1

Six subjects volunteered for this pilot study. One completely misunderstood the ECA scale and could not be contacted to correct her mistakes. Another failed to show for the final interview and testing.

Subjects					
Sex	Age	Marital Status	Class	Major	Influence of Drugs During Study
M	44	M	Soph.	Pharmacy	None
F	17	S	Fresh.	Home-Ec.-Ed.	None
M	18	S	Soph.	Chemistry	*Had been on diet pills but quit day 2
F	21	S	Senior	History	None

* Felt she may have been depressed on day she quit.

ECA Index		SDS Index		I-E Scale	
(Hi score=ECA)		(Low score=depression)		(Hi score=external)	
[16.110*]			
(1)	10.310	(1)	26	(1)	2
(2)	10.310	(3)	49	(3.5)	10
(3)	10.110	(4)	54	(3.5)	10
(4)	9.440	(2)	38	(2)	7

* This score is included to indicate that a larger range of scores is possible than is indicated by the four scores included in the correlation. This S completed the ECA forms but failed to complete the SDS or I-E Scale.

A Spearman rank order statistic performed on the above data yielded the following correlations:

$$r = .40 \text{ ECA/SDS} \quad r = .35 \text{ ECA/I-E}$$

COMMENTS BY SUBJECTS:

Confused by instructions. Numbers 2 and 3 (leisure and home life) conflicted because leisure and home time are pretty much the same. Need more detailed questions.

Thought there would be different questions each day to "find out more what you are thinking." Expected more questions similar to the sample.

Leisure time and home life puzzled him--Is leisure time only that time spent outside home, etc.?

Wanted actual scale lengthened so it would be easier to make %age discriminations. Was not confused by anything else.

Problem of deciding how much time was leisure and how much was home life. Really had little leisure, but considered extracurricular activities as leisure, e.g., Boy Scouts, pesticide activities, etc.

DATA SUMMARY, PILOT STUDY NO. 2

Subjects: 18 college students. Males = 8; Females = 10
 Ss were members of therapy groups at the CPC. Members
 of Group 1 were considered subjectively by the
 clinical team to be the most maladjusted, i.e.,
 depressed, lonely, isolated, etc.

Instruments: Self-Rating Depression Scale (SDS) and
 Effective Causal Agent (ECA) Scale

RESULTS:

	SDS	ECA
<hr/>		
<u>Group 1</u>		
Mean	63.56	26.82
S.D.	10.29	14.13
 <u>Group 2</u>		
Mean	56.78	41.06
S.D.	10.73	12.01
t	1.37	2.25*

* $p < .025$

When scores for the two groups were combined, the
 correlation between the SDS and ECA Scale was found to be
 .735 (Spearman's coefficient of rank correlation).

Mean, standard deviation and t-statistic
 for ECA for subjects classified by sex

Males

Mean 34.91
 S.D. 18.00

Females

Mean 33.26
 S.D. 12.17

t .234 n.s.

APPENDIX C

INSTRUCTIONS FOR I-E SCALE

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items carefully but do not spend too much time on any one item. Be sure to find an answer for every choice. Circle the letter a or b which you choose as the statement more true.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

Now turn the page and begin.

OPINION QUESTIONNAIRE (I-E SCALE)

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try some people just don't like you.
b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.

- b. It is one's experiences in life which determine what they're like.
- 9. a. I have often found that what is going to happen will happen.
 - b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
- 10. a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
 - b. Many times exam questions tend to be so unrelated to course work that studying is really useless.
- 11. a. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
 - b. Getting a good job depends mainly on being in the right place at the right time.
- 12. a. The average citizen can have an influence in government decisions.
 - b. This world is run by the few people in power, and there is not much the little guy can do about it.
- 13. a. When I make plans, I am almost certain that I can make them work.
 - b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
- 14. a. There are certain people who are just no good.
 - b. There is some good in everybody.
- 15. a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
- 16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
b. By taking an active part in political and social affairs the people can control world events.
18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
b. There really is no such thing as "luck."
19. a. One should always be willing to admit mistakes.
b. It is usually best to cover up one's mistakes.
20. a. It is hard to know whether or not a person really likes you.
b. How many friends you have depends upon how nice a person you are.
21. a. In the long run the bad things that happen to us are balanced by the good ones.
b. Most misfortunes are the result of lack of ability, ignorance, laziness or all three.
22. a. With enough effort we can wipe out political corruption.
b. It is difficult for people to have much control over the things politicians do in office.
23. a. Sometimes I can't understand how teachers arrive at the grades they give.
b. There is a direct connection between how hard I study and the grades I get.
24. a. A good leader expects people to decide for themselves what they should do.
b. A good leader makes it clear to everybody what their jobs are.
25. a. Many times I feel that I have little influence over the things that happen to me.

- b. It is impossible for me to believe that chance or luck plays an important role in my life.
- 26. a. People are lonely because they don't try to be friendly.
- b. There's not much use in trying too hard to please people; if they like you, they like you.
- 27. a. There is too much emphasis on athletics in high school.
- b. Team sports are an excellent way to build character.
- 28. a. What happens to me is my own doing.
- b. Sometimes I feel that I don't have enough control over the direction my life is taking.
- 29. a. Most of the time I can't understand why politicians behave the way they do.
- b. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX D

I-E SCALE RELIABILITY AND VALIDITY DATA

Moderate and consistent biserial item correlations with total score (ranging from .109 to .480) are reported by Rotter (1966). Internal consistency and test-retest estimates of reliability are generally in the .70's. Rotter (1966) reported factor analysis data in which 53 percent of the variance is included in a general factor. Additional factors involving only a few items were not considered reliable enough to suggest subscales. However, more recently (Mirels, 1970), a factor analysis found two factors of significance. Factor I is concerned with whether or not the respondents attached greater or less importance to ability and hard work than to luck as influences in "personally relevant" outcomes. Factor II is concerned with acceptance or rejection of the idea that people can exert control over political and world affairs. (A more complete discussion of this study is presented in the "theoretical distinctiveness" section of the present paper.) Rotter (1966) reported that discriminant validity is indicated by negative or low correlations with measures of social desirability or need for approval (correlations with the Marlowe-Crowne Social Desirability Scale using college student and prisoner populations ranged from $-.12$ to $-.41$); intelligence ($r = -.09$ to $.03$, using college student and prisoner populations); and political liberalism.

(no significant differences were found in the mean scores of college students who identified themselves as members of the major parties or as independents, $N = 114$). Sex differences tended to be minimal, although Rotter reported one sample where females were significantly more external (University of Connecticut elementary psychology students, $N = 303$), and Feather (1967) also reported females to be significantly more external. A study by Wolfe (as reported in Minton, 1967) suggested that sex differences may be more characteristic of non-college than of college samples. Using adult samples from various communities, he found females tended to be more external. This difference was significant at the .01 level when the samples were combined. Minton (1967) reported a negative relationship between achievement and externality using a variety of comparison measures. Rotter (1966), Lefcourt (1966), and Minton (1967) have written review articles on the locus of control concept.

APPENDIX E

SELF-RATING DEPRESSION SCALE

This scale consists of numbered statements. Read each statement and decide how much it is applicable to you at the time of this test. Check one of the four boxes to the right of each statement. If you feel the statement is not at all applicable to you, check the box labeled "A Little of the Time."

Be sure to write your name at the top of the next page.

NOW TURN THE PAGE AND BEGIN.

SELF-RATING DEPRESSION SCALE

	A little of the time	Some of the time	Good part of the time	Most of the time
1. I feel down-hearted and blue				
2. Morning is when I feel the best				
3. I have crying spells or feel like it				
4. I have trouble sleeping at night				
5. I eat as much as I used to				
6. I still enjoy sex				
7. I notice that I am losing weight				
8. I have trouble with constipation				
9. My heart beats faster than usual				
10. I get tired for no reason				
11. My mind is as clear as it used to be				
12. I find it easy to do the things I used to				
13. I am restless and can't keep still				
14. I feel hopeful about the future				

SELF-RATING DEPRESSION SCALE (Continued)

	A little of the time	Some of the time	Good part of the time	Most of the time
15. I am more irritable than usual				
16. I find it easy to make decisions				
17. I feel that I am useful and needed				
18. My life is pretty full				
19. I feel that others would be better off if I were dead				
20. I still enjoy the things I used to do				

APPENDIX F

SDS RELIABILITY AND VALIDITY DATA

Zung (1967) reported that the SDS was not affected by the subject's age, sex, marital status, educational level, financial status, or intelligence level. Using Pearson product moment correlation coefficients he reported the following correlations: SDS and age: $r = .06$; educational level: $r = -.28$; financial status: $r = .02$; Ohio Literacy Test: $r = -.03$. Using a t-statistic, Zung found no significant difference between mean SDS scores for males and for females.

APPENDIX G

SENTENCES FOR THE SENTENCE COMPLETION TASK

<u>Sentences</u>	<u>Type of Ambiguity (Sentence Type)</u>	<u>Median Completion Time</u>
1. Perry Mason, having a ball with his case, asked	Lexical Lexical (3)	6.8
2. Noticing the file on the old school, I	Lexical Lexical (2)	6.0
3. When I took the chair before the board	Lexical Lexical (1)	5.1
4. While I worked on the three train ferries,	Surface Surface (3)	7.5
5. Westmoreland, wondering how many planes attacked yesterday	Surface Surface (2)	7.2
6. Oppenheimer, discussing the problems with the mathematicians in German,	Surface Surface (1)	8.6
7. Discussing our fighting as well as the Germans	Underlying Underlying (1)	7.2
8. Boone's throwing knives as well as Bill was	Underlying Underlying (3)	8.6
9. Since the ones to help were embarking soldiers, we	Underlying Underlying (2)	7.7
10. Claiming the work was done over on the roof	Lexical Surface (1)	7.67
11. While lecturing on their stand in Leningrad, Stalin	Lexical Surface (2)	8.2
12. Sailing the three masted ships into the dock, Drake	Surface Lexical (2)	8.8

<u>Sentences</u>	<u>Type of Ambiguity (Sentence Type)</u>	<u>Median Completion Time</u>
13. That grade hindering more rapid progress, I decided	Surface Lexical (2)	8.8
14. Before stopping arguing in the court, Wimbledon	Underlying Lexical (2)	8.7
15. After criminal lawyers took the picture, Fosdick couldn't	Lexical Underlying (3)	7.7
16. His visiting physicians provoking a discussion of Adenauer's age	Lexical Underlying (1)	9.7
17. Before taking the plane to England, Bishop	Underlying Lexical (2)	6.2
18. Dissatisfied with the French interpreter's selection, Berlioz insisted	Underlying Surface (3)	8.3
19. Asking how long flying planes could be dangerous, I	Underlying Surface (2)	11.0
20. Approving of her skating at the pond, I	Surface Underlying (2)	5.25
21. After James Bond broke the window with the Russian	Surface	8.7

STRUCTURAL AND VALIDITY INFORMATION FOR THE AMBIGUOUS SENTENCES

The degree of difficulty in completing the ambiguous sentences, as measured by completion time is related to the linguistic level at which the ambiguity occurs (MacKay, 1966). Further, sentences containing two ambiguities are more difficult to complete (median completion time is 10.2 sec., significant at the .01 level, using a Mann-Whitney U-Test) than those containing only one. If the two ambiguities are at different linguistic levels they are more difficult than when both occur at the same level (significant at the .01 level, Mann-Whitney U-Test). MacKay also found that ambiguity apparently may affect the grammaticality and relevance of the completions and may cause stuttering and laughter even though the subjects are unaware of the ambiguity.

The sentence types used were those without either subject or verb (labeled 1 in the list of sentences, Appendix G); those without a verb (labeled 2); and those with subject and verb, but not object (labeled 3). Sentence types were varied for the different levels of ambiguity to ensure that completions did not fall into a stereotyped grammatical structure. Similarly, the subject of some of the sentences is a personal pronoun, such as I or we, and for the others, the name of a famous person, such as Kennedy or Roosevelt.

APPENDIX H

INSTRUCTIONS FOR CARD PLACEMENT TASK

Now remove the rubber band from this pack of cards and turn over the first card without disturbing the others and place it on the table in front of you. You will notice that this card has the name of a feeling on it. There will be a different feeling on each of the remaining cards in this pack.

Now read the word on the card in front of you and think about what it means to you. I want you to actually experience the feeling. I want you to imagine a situation in which you have experienced such a feeling, or, if you have never been in such a situation, try to imagine what it would be like. Just lean back and relax. Some people find it easier to bring about the feeling if they close their eyes, but it is not necessary. You can close your eyes if you like, or you can leave them open. Just wait until you can actually feel the emotion, and then begin moving the card around with your pointer. Try various places until you find a place in the field where the feeling feels best in relation to you. There are no right or wrong answers, so don't try to reason things out. Just let it happen. When you finish with the card, it should be in a special place which feels best in relation to you. I am not going to watch you work, so let me know when you have finished with it by pressing the button on the chair

next to you.

Now consider the first feeling. Read the word on the card and think about what it means to you. But remember, first feel it. Wait until you can actually feel it, and then begin moving the card around and let me know when you have found its place.

(To be read by E after first placement.) Now do the same for each of the feelings, in the order in which they appear on the rest of the cards in this pack, remembering to first experience the feeling actually feel it, and then to begin moving the card around. Also remember to let me know when you have finished with each card.

LOCATION CHART FOR THE CARD PLACEMENT TASK (REDUCED)

Date _____

S's Name _____

E's Name _____

	1	2	3	4	5	6	7	8	9
1									
2									
3									
4									
5									

A-F _____

A-D _____

A-Am _____

A-S _____

A-J _____

F-D _____

F-Am _____

F-S _____

F-J _____

D-Am _____

D-S _____

D-J _____

Am-S _____

Am-J _____

S-J _____

Σ _____

INSTRUCTIONS FOR THE AMBIGUOUS
SENTENCE TASK

This is a sentence completion task. I will place a card face down in front of you. You are to flip over the card, on which a sentence fragment is typed, think up a relevant completion for the fragment, and then say the entire sentence out loud. I will time you and your sentence completions will be tape-recorded. Completions should be concise, grammatical, and most important, relevant to the meaning of the sentence fragment. Do not read the sentence aloud until you have thought up a relevant completion, then say the entire sentence out loud.

Do you have any questions?

All right, we'll begin now.

APPENDIX I

DEBRIEFING STATEMENT

February, 1971

To: Subjects in the "Self-Rating" Study

The "self-rating" study was designed to validate a personality construct termed "the effective causal agent." We were interested in determining if people could evaluate how effective they felt in their daily lives--if they felt more like causal agents than like "leaves in the wind." We were also interested in seeing if subjective ratings of effectiveness correlated with performance.

The task which involved experiencing feelings and moving cards around the table was designed as a measure of affect discrimination. The farther apart the cards are placed in this task, the more the individual is able to discriminate these feelings. The sentence completion task was designed to test performance in the face of ambiguity. Each sentence fragment had at least one ambiguity, and some fragments contained as many as three ambiguities at various lexical levels.

Since the data analysis will not be completed until next quarter, questions concerning specific results cannot be answered at this time.

Thank you very much for your cooperation.

Joyce Gale, Experimenter

POSTTEST QUESTIONNAIRE

Self-Rating Study

J. Gale

We would appreciate it very much if you would help with this last bit of information. Please answer the following questions, and drop the sheet in that familiar gray box in the graduate student room in the Psychology Building.

Name: _____

1. Did you enjoy monitoring your feelings about your behavior every day?

Yes _____

No _____

For what reasons?

2. Do you think you changed your behavior in any way because of the fact that you were monitoring your feelings about it daily?

Yes _____

No _____

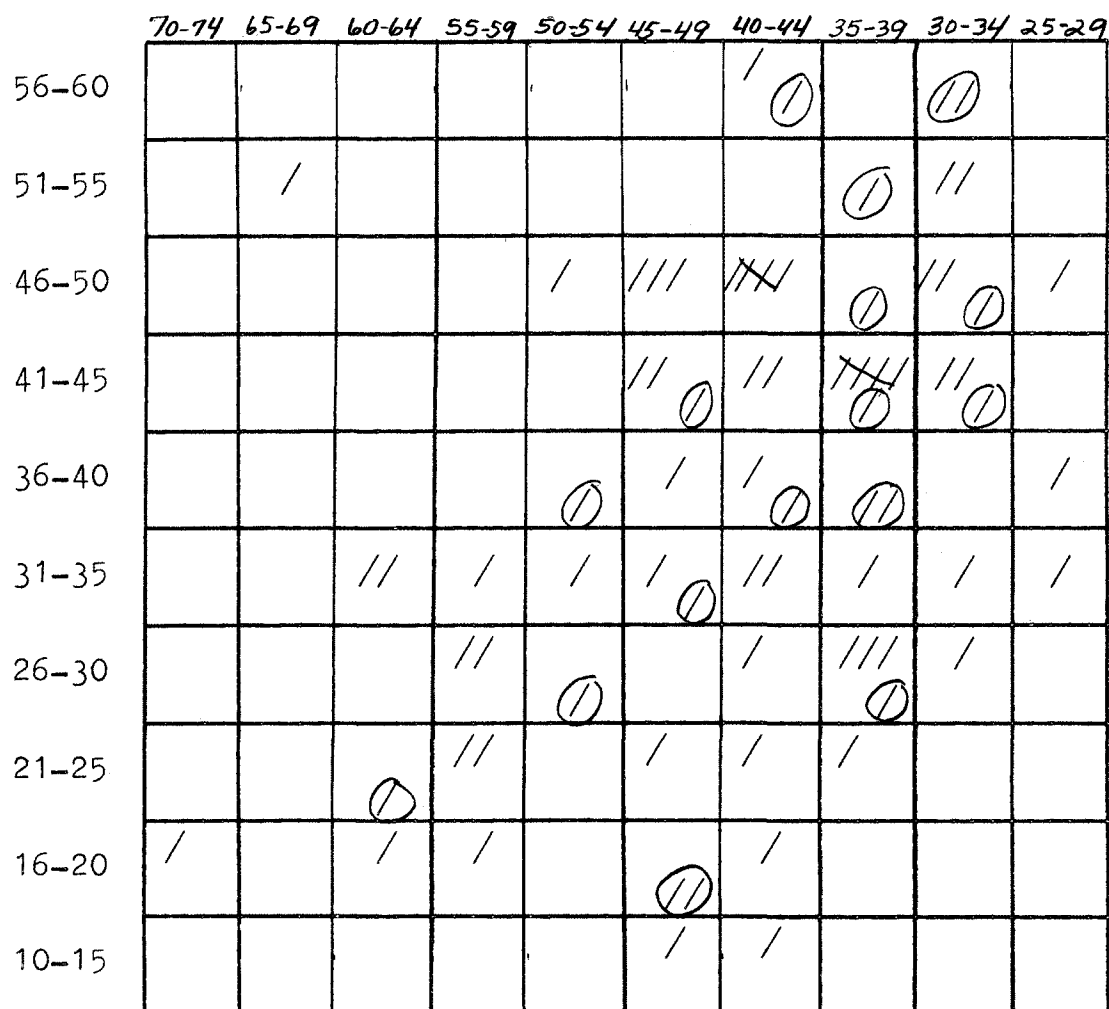
If yes, in what way?

3. Other comments you care to make:

APPENDIX J

SCATTERPLOT OF ECA AND SDS SCORES

SDS Scores



N = 77

Circled frequencies = Ss selected on basis of
I-E scores

SCATTERPLOT OF I-E AND SDS SCORES

		SDS Scores						
		60-64	55-59	50-54	45-49	40-44	35-39	30-34
I-E Scores	0- 3							//
	4- 6				//	/	////	/
	7- 9							
	10-12							
	13-15	/				/		/
	16-19			//	//		/	
	19-21						/	